Amendments to the Claims

Please amend the claims to read as shown in the following listing of the claims.

1. (Canceled)

2. (Previously Presented) The apparatus of claim 31, wherein the separation element is attached to at least one of the body and the cover.

3. (Previously Presented) The apparatus of claim 2, wherein the separation element is integral with at least one of the body and the cover.

4. (Previously Presented) The apparatus of claim 31, wherein one of the cover and the body defines a fluid inlet port in fluid communication with the inlet region and one of the cover and the body defines a fluid outlet port in fluid communication with the outlet region.

5. (Original) The apparatus of claim 4, further comprising a fluid displacement device for providing fluid to the fluid inlet port.

6. (Previously Presented) The apparatus of claim 31, wherein the void is filled with fluid.

7. (Previously Presented) The apparatus of claim 6, wherein the particles are cells and the cells are disposed in the inlet region.

8. (Previously Presented) The apparatus of claim 31, wherein the height of each of the first and second passageways is in the range from 0.1 micrometer to 1000 micrometers.

9. (Previously Presented) The apparatus of claim 8, wherein the height of each of the first and second passageways is in the range from 0.5 micrometer to 25 micrometers.

10. (Previously Presented) The apparatus of claim 8, wherein the height of each of the first and second passageways is in the range from 1 micrometer to 16 micrometers.

11. (Previously Presented) The apparatus of claim 8, wherein the height of each of the first and second passageways is in the range from 1 micrometer to 10 micrometers.

12. (Previously Presented) The apparatus of claim 8, wherein the height of each of the first and second passageways is in the range from 1 micrometer to 5 micrometers.

13. (Previously Presented) The apparatus of claim 31, wherein one of the body, the cover, and the separation element defines a fluid channel for withdrawing fluid from the void at a step of the separation element.

14. (Previously Presented) The apparatus of claim 31, further comprising a device for detecting a particle in the void at a step of the separation element.

15. (Previously Presented) The apparatus of claim 31, further comprising a device for manipulating a particle in the void at a step of the separation element.

16. (Previously Presented) The apparatus of claim 15, wherein the device is a device for killing a cell.

17. (Original) The apparatus of claim 16, wherein the device is a heating element.

18. (Previously Presented) The apparatus of claim 31, wherein a surface of the separation element has an antibody attached thereto.

19. (Previously Presented) An apparatus comprising two apparatus of claim 31, wherein the outlet region of the first apparatus is in fluid communication with the inlet region of the second apparatus.

20. (Currently Amended) A method of separating particles, the method comprising providing the particles to the inlet region of a microscale apparatus, the apparatus comprising a body, a cover, and a separation element,

the body and cover defining a void having an inlet region, an outlet region, and a surface,

the separation element i) being disposed in the void, ii) having a plurality of steps including a first step and a second step, and iii) defining a narrow passageway that fluidly connects the inlet and outlet regions in a fluid path,

the narrow passageway including a first passageway and a second passageway,

the first passageway fluidly connecting the inlet region and the second passageway, being bounded by the first step and the surface of the void, and having a height defined by the distance between the first step and the surface of the void, and

the second passageway fluidly connecting the first passageway and the outlet region, being bounded by the second step and the surface of the void, and having a height defined by the distance between the second step and the surface of the void, wherein the width of the narrow passageway at the portion of the second step nearest the inlet region in the fluid path is ~~more~~ greater than ~~twice~~ the height of the second passageway,

the height of the second passageway being smaller than the height of the first passageway,

passing a fluid from the inlet region into the outlet region by way of the narrow passageway, whereby particles are separated based on a characteristic dimension of the individual particles, and

thereafter collecting separated particles.

21. (Withdrawn) The method of claim 20, wherein the fluid is passed from the inlet region to the outlet region using a fluid displacement device to add fluid to the inlet region by way of a fluid inlet port that extends through at least one of the body and the cover and that fluidly communicates with the inlet region.

22. (Withdrawn) The method of claim 20, wherein the separated particles are collected from a step of the separation element.

23. (Withdrawn) The method of claim 20, wherein the particles provided to the inlet region are cells of a blood sample and the collected particles are stem cells.

24. (Withdrawn) The method of claim 23, wherein the blood sample is a cord blood sample.

25. (Withdrawn) The method of claim 23, wherein the height of the second passageway is sufficient to permit passage of blood platelets therethrough.

26-27. (Canceled)

28. (Withdrawn) The method of claim 20, wherein the particles are cells.

29. (Withdrawn) The method of claim 20, wherein the particles provided to the inlet region are cells of a blood sample obtained from a pregnant woman and the collected particles are fetal cells.

30. (Withdrawn) The method of claim 20, wherein the particles provided to the inlet region are cells of a blood sample obtained from a pregnant woman and the collected particles are fetal stem cells.

31. (Currently Amended) A microscale apparatus for separating particles, the apparatus comprising a body, a cover, and a separation element,

the body and cover defining a void having an inlet region, an outlet region, and a surface,

the separation element i) being disposed in the void, ii) having a plurality of steps including a first step and a second step, and iii) defining a narrow passageway that fluidly connects the inlet and outlet regions in a fluid path,

the narrow passageway including a first passageway and a second passageway,

the first passageway fluidly connecting the inlet region and the second passageway, being bounded by the first step and the surface of the void, and having a height defined by the distance between the first step and the surface of the void, and

the second passageway fluidly connecting the first passageway and the outlet region, being bounded by the second step and the surface of the void, and having a height defined by the distance between the second step and the surface of the void, wherein the width of the narrow passageway at the portion of the second step nearest the inlet region in the fluid path is ~~more~~ greater than ~~twice~~ the height of the second passageway,

the height of the second passageway being smaller than the height of the first passageway.

32. (Previously Presented) The apparatus of claim 31, wherein each of the first step and the second step is defined by a pair of planar surfaces of the separation element that meet at a right angle.

33. (Previously Presented) The apparatus of claim 31, wherein the separation element has at least one additional step in addition to the first and second step, each additional step defining an additional passageway that i) fluidly connects the second step and the outlet region ii) is bounded by the additional step and the surface of the void, and iii) has a height defined by the distance between the additional step and the surface of the void, the height of each additional passageway being smaller than the height of all other passageways between it and the inlet region.

34. (Currently Amended) A kit comprising a body, a cover, and a separation element,

the body and cover being adapted to fit one another and, when assembled, to define a void having an inlet region, an outlet region, and a surface,

the separation element i) being disposable in the void of the assembled body and cover, ii) having a plurality of steps including a first step and a second step, and iii) defining a narrow passageway that fluidly connects the inlet and outlet regions in a fluid path when the body and cover are assembled with the separation element disposed in the void such that,

the narrow passageway includes a first passageway and a second passageway,

the first passageway fluidly connecting the inlet region and the second passageway, being bounded by the first step and the surface of the void, and having a height defined by the distance between the first step and the surface of the void, and

the second passageway fluidly connecting the first passageway and the outlet region, being bounded by the second step and the surface of the void, and having a height defined by the distance between the second step

and the surface of the void, wherein the width of the narrow passageway at the portion of the second step nearest the inlet region in the fluid path is ~~more~~ greater than ~~twice~~ the height of the second passageway,

the height of the second passageway being smaller than the height of the first passageway.

35. (Previously Presented) The apparatus of claim 31, wherein the height of the first passageway is about 12-16 micrometers and the height of the second passageway is about 5.5 to 8.5 micrometers.

36. (Withdrawn) The method of claim 20, wherein the height of the first passageway is about 12-16 micrometers and the height of the second passageway is about 5.5 to 8.5 micrometers.